DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-007389
Date Inspected: 17-Jun-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Rob Walters	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☐ No ☑ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-1: 6/17/09
a111-1 Forging to a110-1 Base Plate
QA Inspector noticed that the critical weld repair (CWR-003 Rev. #1) had been previously completed and was sitting idle.

Hinge-K Pipe Beam Assembly 102A-2: 6/17/09
a111-2 Forging to a110-2 Base Plate
QA Inspector noticed this assembly 102A-2 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-3: 6/17/09
a111-3 Forging to a110-3 Base Plate
QA Inspector noticed this assembly 102A-3 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-4: 6/17/09
a111-4 Forging to a110-4 Base Plate
QA Inspector noticed this assembly 102A-4 had been previously placed in position and welder #T6, Mr. Craig Jacobson, was in process of performing submerged arc welding on the PJP AWS D1.5 TC-P5-S, a111-4 forging to e108 stiffener plate, designated as weld joint # W1-146, in the flat position. QA verified Mr. Jacobson was currently qualified for this process/position and noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4016). QA Inspector randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit and noticed QC Inspector Rob Walters was present to monitor in-process welding parameters (amps/volts). QA Inspector noted that Mr. Walters had recorded in-process welding parameters of 380 amps and 28 volts, which appears to be in compliance with the applicable welding procedure specification.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 6/17/09
a124-6 Half Fuse to a124-7 Half Fuse
QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 6, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 6/17/09
a124-3 Half Fuse to a124-11 Half Fuse
QA Inspector noticed this assembly 120A-2 was sitting idle, pending transfer to A&G Machining for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 6/17/09
a124-12 Half Fuse to a124-10 Half Fuse
QA Inspector noticed that the stainless steel overlay welding (ESW) was complete on this fuse assembly 120A-3 and was sitting idle, in OIW Bay 3.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 6/17/09
a124-13 Half Fuse to a124-4 Half Fuse
QA Inspector noticed that the stainless steel overlay welding was in-process, on this fuse assembly 120A-4. QA Inspector witnessed welder #F17, Mr. Igor Frolov, performing electro slag welding (ESW) in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip. QA Inspector noted that the first overlay weld passes were approximately 30% complete. QA Inspector noted that once the first layer passes were complete, the remaining two layer passes would be welded utilizing Soudokay brand Soudotape 316L stainless steel consumable strip. QA Inspector noticed QC Inspector's Mike Gregson and Rob Walters were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Rob Walters and Mr. Rob Walters explained that welding amps were recorded as 1300 amps/26 volts, with and a pre-heat temperature of approximately 125 degrees Fahrenheit. QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 125 degrees Fahrenheit. QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached photo of assembly 120A-4 below.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 6/17/09
a124-14 Half Fuse to a124-2 Half Fuse

A & G Machining

QA Inspector spoke with A&G Machining and A&G explained this fuse assembly 120A-5 rough machining had been previously completed and would be transferred back to OIW fabrication shop on Thursday (6/18/09), for 100% magnetic particle testing on the exterior rough machined surface and 100% ultrasonic weld inspection on the CJP circumferential weld splice. A&G also explained that fuse assembly 120A-6 would be transferred to A&G, on 6/18/09, to begin rough machining. A&G explained that an A&G machinist would be verifying roundness measurements and an OIW machinist would be present, to also verify dimensions and potentially release this fuse assemble 120A-6 to A&G, to begin rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-6: 6/17/09

a124-1 Half Fuse to a124-9 Half Fuse

QA Inspector noticed this fuse assembly 120A-6 was sitting idle, pending transfer to A&G for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-7: 6/17/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector noticed the half-fuse sub-assemblies identified as a124-5 and a124-15 were in-process of being fit-up in preparation for FCAW tacking and was sitting idle.

Hinge-K Pipe Beam Sub-Assembly a124-16: 6/17/09

a125 & b125 Ring Stiffeners to a124-16 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, performing submerged arc welding on the a125 internal ring stiffener to a124-15 half fuse, designated as weld joint #WM3-08. QA Inspector noticed the submerged arc welding was being performed in the flat position and verified Mr. Tim O'Brian was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 350 F, which is in accordance with the applicable welding procedure specification (WPS 4020). QA Inspector randomly recorded in-process welding parameters of 600 amps and 34 volts and noticed that QC Inspector Rob Walters was present to randomly verify in-process welding parameters (amps/volts) and pre-heat temperatures. QA Inspector noted that the submerged arc welding being performed by Mr. Tim O'Brian, appeared to be in compliance with the applicable welding procedure specification (WPS 4020).

OIW South Storage Yard: 6/17/09

QA Inspector noticed the following half-fuse sub assembly was sitting idle, pending submerged arc welding on the internal stiffener rings, piece marks identified as a125 & b125: a124-8.

Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors. The following personell were present at A&G: 1A&G supervisor and 1 A&G machinist

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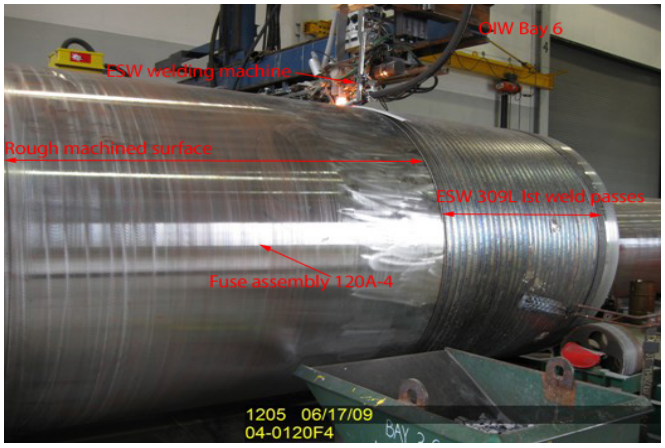

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer